INFERTILE INVESTIGATION PROJECT OF CROSSBRED DAIRY CATTLE

1. CALVING RATE OF CROSSBRED DAIRY CATTLE IN RATCHABURI PROVINCE

โครงการศึกษาปัญหาและการแก้ไขการผสมติดยาก ในโคนมพันธุ์ผสม

1. อัตราการคลอดลูกของโคนมที่จังหวัดราชบุรี

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บทคัดย่อ

การศึกษาย้อนหลัง (Retrospective study) ของอัตราการคลอดลูก (Calving rate) ของแม่โคนมลูกผสม ตั้งแต่ปี 2521 ถึง 2523 ที่จังหวัดราชบุรี พบว่าในกลุ่มของแม่โคที่ผสมติดใน 1-3 ครั้ง มีอัตราการคลอดลูกเป็น 68.6, 69.5 และ 70.7% ส่วนกลุ่มของแม่โคที่ผสมเกินกว่า 3 ครั้ง มีอัตราการคลอดลูกตามลำดับดังนี้ 25.1, 23.5 และ 21.9% จำนวนครั้งที่ผสมต่อการให้ลูก 1 ตัว คือ 2.9 อัตราส่วนเพศของลูกตัวผู้และตัวเมียเป็น 0.99 : 1 (หรือ 49.9 : 50.1)

Abstract

Retrospective studies of calving rate of crossbred dairy cows during 1978-1980 in Ratchaburi province were analysed. It was found that percentage of calving which inseminated 1-3 times were 68.6, 69.5 and 70.7 while over 3 insemination were 25.1, 23.5 and 21.9 respectively. The number of inseminations per calving was 2.9 and sex ratio of male and female calves was 0.99 : 1 (or 49.9 vs 50.1).

Introduction

Ratchaburi artificial insemination centre was established at Nong-Po village, Potaram district, Ratchaburi province in 1960 in order to upgrade native cattle to be crossbred dairy cows with exotic bull semen. Native cattle, for beef purpose, is the type of low productivity and genetic potential but well adapt to the climatic environment. Aim of improving productivity on the basis of nation-wide programme, fresh semen from several dairy breeds such as Brown-Swiss, Holstein Friesian, Shorthorn, Red Dane, Red Sindhi and 50% Brown-Swiss-25% Holstein Friesian-25% Zebu were used during the first 15 years of the operation. For the last few years, the policy of using mainly Holstein Friesian purebred and crossbred deep frozen semen was adopted. Gradually, Ratchaburi province becomes a well organize for artificial insemination area

with a dense cows population of about 7,000 milking cows. A dairy plant of self sufficient type was established in the centre of the potential production site.

Reproductive problems seem to increase parallel to the number of the animals in the area. Such problems cause economic lost in term of production and investment for the farmers keeping the animals in the herd for hoping that the fertility will be restored.

Lower fertility is not only a problem in the farm, but also infectious diseases, heredity, poor nutrition, improper management, reduced viability of male sperms or failure to breed the cow at the most appropiate time. Arthur (1975) reported that the cause of infertility more often lied in the female than in the male. Even temporary infertility might be the cause of great loss due to time consumming and milk yield. The aim of the present report was to investigate total calving rate and the number of inseminations per calving which would eventually reflect fertility level. In order to provide basic information, sex ratio of the calves was also determined.

Materials and Methods

Twenty eight villages of Ratchaburi province which benefit artificial insemination service by Ratchaburi Artificial Insemination during 1978-1980 wer randomized by one-stage cluster sampling (Leabo, 1968). Annual data were analysed separately and designated as subgroup A and B which were 1 to 3 insemintions per calving and 4 or more respectively.

Calving rate was defined as number of calves born divided by number of cows inseminated. The number of inseminations per calf born as well as sex ratio of male and female calves during the period studied was investigated.

Results and Discussion

Retrospective studies on four aspects of reproductive performance of crossbred dairy cows in Ratchaburi province during 1978–1980 were reported. As depicted in table 1, annual calving rate during the period studied was compared between subgroup A and B.

Table 1. Calving rate of crossbred dairy cows 1–3 and over 3 inseminations during 1970–1980

Year	Number of cows studied	Calving rate	
		Subgroup A	Subgroup B
1978	1429	68.6	25.1
1979	1792	69.5	23.5
1980	2200	70.7	21.9

Subgroup A = 1–3 inseminations per calving

Subgroup B = 4 or more than 4 inseminations per calving

The result of this study indicated that calving rate of crossbred dairy cows of each year was not significant difference $(P > 0.05)$. However, Foote and Hall (1954) reported that calving rate per insemination from 1 to 7 were 59, 53, 48, 32, 30, 31 and 19 respectively.

The number of inseminations per calving which was computed by the number of inseminations divided by the total number of calves during 1978–1980 was 2.91, while Hernandez (1964) reported the figure of Holstein Friesian and crossbreds which were 3.69 and 2.93 respectively; Ensminger (1960) proposed reasonable averages of 1.85 services per conception for beef cattle in the temperate zone. Furthermore, Branton

(1970) and Foley *et al.* (1972) found it to be only 1.6. Nevertheless, our figure was higher than those from other countries, it seemed to be fair for dairy cattle in Thailand.

Calf sex ratio (male : female) during 1978–1980 was 0.99 : 1 or 49.9 : 50.1 while different reports published by others were as follow : – Williams (1943) 51.1 : 48.9, Altman & Dittmer (1962) 48.6 : 51.5, Brands *et al.* (1965) 50.6 : 49.4, and Seksit *et al.* (1981) 50.6 : 49.4.

Reference

Altman, P.L. and Dittmer, D.S. 1962. Growth including reproduction and morphological development. Biological Handbook. Feder. Amer. Soc. for Exper. Biol. Washington, D.C. (cited by Roberts).

Arthur, G.H. 1975. Infertility in the cow. In : Veterinary Reproduction and Obsterics. 4th ed. Bailliere Tindall. 373.

Brands, A.F.A., Banerjee–Schotsman, J., VanDieten, S.W.J. and VanLoen, A. 1965. Sex ratio at birth in cattle. Tijdschr. vor Diergeneesk. 90, 13, 909. (cited by Roberts).

Branton, C. 1970. Fertility. In : Cattle production in the tropics, Vol. 1, Edited by W.J.A. Payne, Printed in Great Britain by Westerns Printing Services Ltd., Bristal. 1st publish (Longman group Ltd.) 263–266.

Ensminger, M.E. 1960. Beef cattle science. Intermediate Printers and Publish. Danville. 111 (cited by Branton).

Foley, R.C., Bath, D.L., Dikinson, F.N. and Tucker, H.A. 1972. Dairy cattle : Principles, Practices, Problems, Profits. Lea & Febiger. 334–335.

Foote, R.H. and Hall, J.C. 1954. J. Dairy Science 37 : 673 (cited by Foley *et al.*).

Hernandez, P.A. 1965. A study of some reproductive characters in purebred and crossbred cows in Venezuela. 5th Int. Congr, Animal Reprod. A.I. (Trento) 1964 Vol. VII : 557–561. In : Animal breeding abstracts. Vol. 34 (1) 47, 1966.

Leabo, D.A. 1968. Basic Statistics. 3rd ed. Richard D. Irwin Inc.

Roberts, S.J. 1971. Sex parity. In : Veterinary Obstetrics and Genital Disease. 2nd ed. 90–91.

Seksit, P., Sarikaputi, P., Jitjumroonchokchai, J., Songsasen, P., Tongsodsaeng, S. and Chantaraprateep, P. 1981. Some observations on reproductive preformances of crossbred dairy cows during 1973-1979 in Chiengmai province. T.V.M.A. Vol. 32 (4) 299–308.

Williams, W.J. 1943. Diseases of the genital organs of domestic animals. 3rd ed. Louella Williams. Upland Rd. Ithaca. N.Y.

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พระคุณแม่แผ่กว้างทุกทางทิศ
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เสมือน "แพ" มี "น้ำ" ค้ำจุนอยู่
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